N-CHANNEL SILICON FIELD-EFFECT TRANSISTORS

Symmetrical N-channel planar epitaxial junction field-effect transistors in a plastic TO-92 variant; intended for v.h.f. and u.h.f. applications.

QUICK REFERENCE DATA

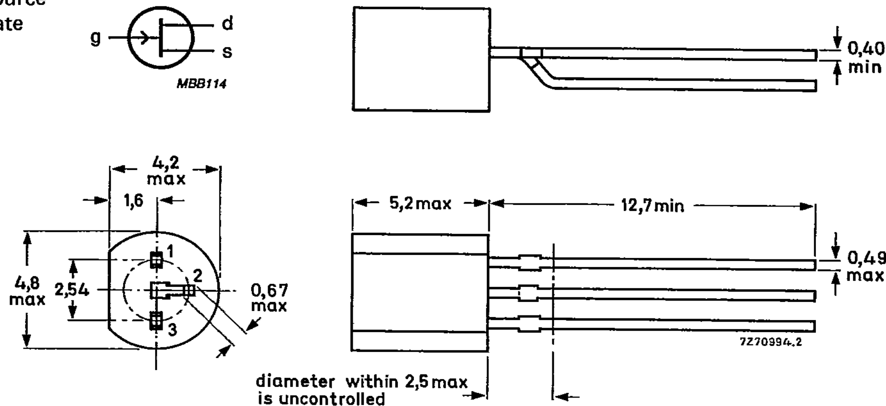
		BF256A	B	C	
Drain-source voltage	$\pm V_{DS}$	max.		30	V
Gate-source voltage (open drain)	$-V_{GSO}$	max.		30	V
Total power dissipation up to T_{amb} = 75 °C	P_{tot}	max.		300	mW
Drain current V_{DS} = 15 V; V_{GS} = 0	I_{DSS}	>3	6	11	mA
		<7	13	18	mA
Feedback capacitance at f = 1 MHz V_{DS} = 20 V; $-V_{GS}$ = 1 V; T_{amb} = 25 °C	C_{rs}	typ.		0,7	pF
Transfer admittance (common source) V_{DS} = 15 V; V_{GS} = 0; f = 1 kHz; T_{amb} = 25 °C	$\lvert y_{fs} \rvert$	>		4,5	mS
Power gain at f = 800 MHz V_{DS} = 15 V; R_S = 47 Ω	G_p	typ.		11	dB

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-92 variant.

Pinning;
1 = drain
2 = source
3 = gate



Note: Drain and source are interchangeable

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Drain-source voltage	$\pm V_{DS}$	max.	30 V
Drain-gate voltage (open source)	V_{DGO}	max.	30 V
Gate-source voltage (open drain)	$-V_{GSO}$	max.	30 V
Gate current	I_G	max.	10 mA
Total power dissipation			
up to T_{amb} = 75 °C	P_{tot}	max.	300 mW
up to T_{amb} = 90 °C	P_{tot}	max.	300 mW 1)
Storage temperature	T_{stg}		−65 to + 150 °C
Junction temperature	T_j	max.	150 °C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j\text{-}a}$	=	250 K/W
From junction to ambient	$R_{th\ j\text{-}a}$	=	200 K/W 1)

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

			BF256A	B	C	
Gate cut-off current $-V_{GS}$ = 20 V; V_{DS} = 0	$-I_{GSS}$	<	5			nA
Drain current 2) V_{DS} = 15 V; V_{GS} = 0	I_{DSS} 3)	>	3	6	11	mA
		<	7	13	18	mA
Gate-source breakdown voltage $-I_G$ = 1 μA; V_{DS} = 0	$-V_{(BR)GSS}$	>	30			V
Gate-source voltage I_D = 200 μA; V_{DS} = 15 V	$-V_{GS}$ 3)		0,5 to 7,5			V

1) Transistor mounted on printed-circuit board, maximum lead length 3 mm, mounting pad for drain lead minimum 10 mm x 10 mm.

2) Measured under pulse conditions: t_p = 300 μs; $\delta \leqslant 0{,}02$.

3) BF256B/1: I_{DSS} = 6 to 8 mA; $-V_{GS}$ = 1,4 to 2,6 V.

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y-parameters (common source)

Transistor admittance at f = 1 kHz V_{DS} = 15 V; V_{GS} = 0	$\|y_{fs}\|$	> typ.	4,5 mS 1) 5 mS 1)
Output capacitance at f = 1 MHz V_{DS} = 20 V; V_{GS} = 0	C_{os}	typ.	1,2 pF
Feedback capacitance at f = 1 MHz V_{DS} = 20 V; $-V_{GS}$ = 1 V	C_{rs}	typ.	0,7 pF
Cut-off frequency V_{DS} = 15 V; V_{GS} = 0	f_{gfs}	typ.	1 GHz 2)
Noise figure at f = 800 MHz V_{DS} = 10 V; R_S = 47 Ω	F	typ.	7,5 dB
Power gain at f = 800 MHz V_{DS} = 15 V; R_S = 47 Ω	G_p	typ.	11 dB

1) Measured under pulse conditions: t_p = 300 μs; $\delta \leq 0,02$.

2) The frequency at which g_{fs} is 0,7 of its value at 1 kHz.

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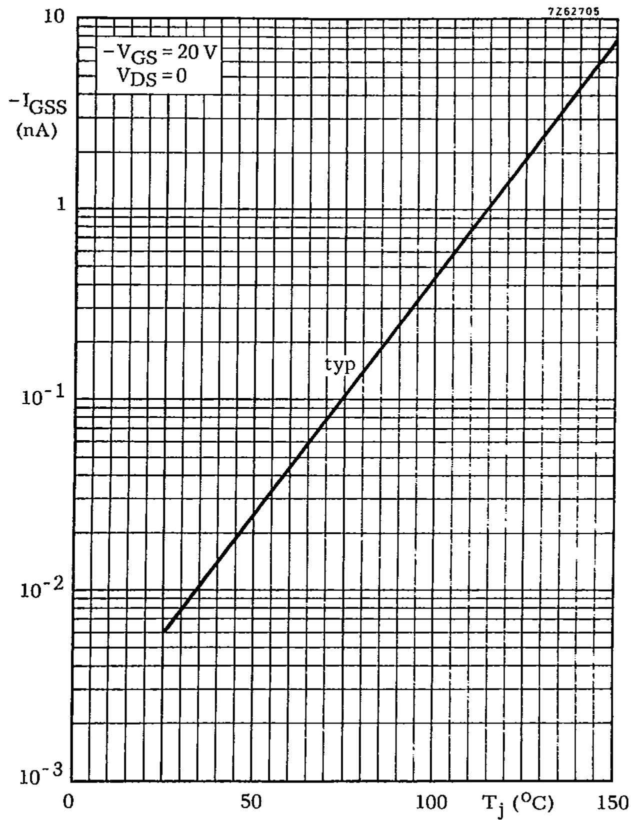

Fig. 2

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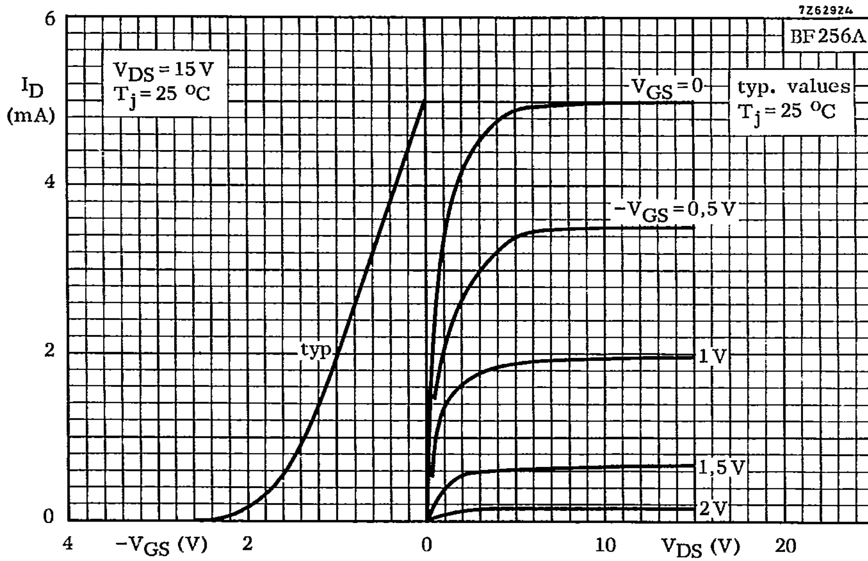

Fig. 3

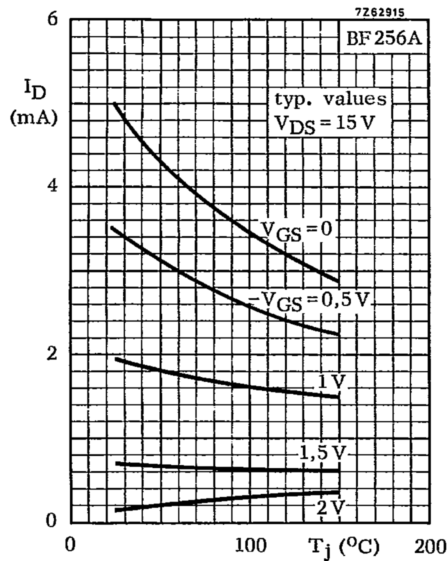

Fig. 4

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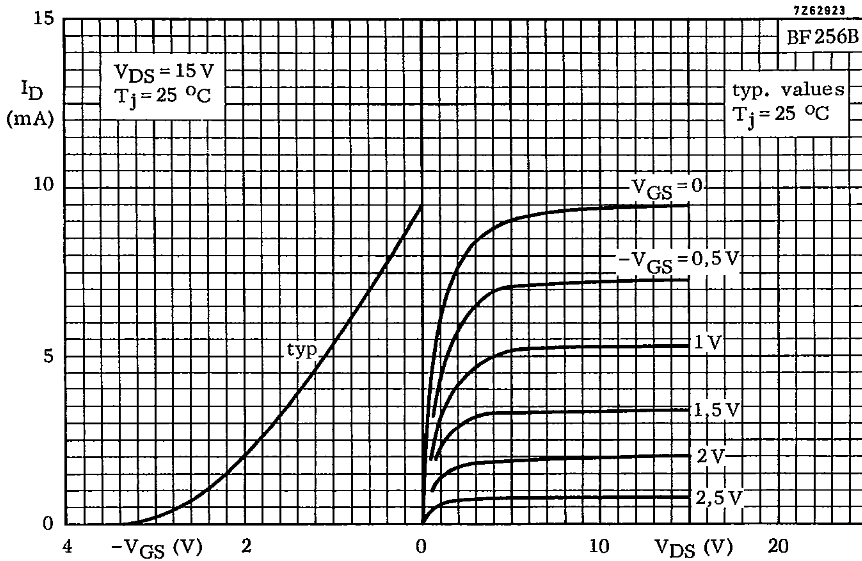

Fig. 5

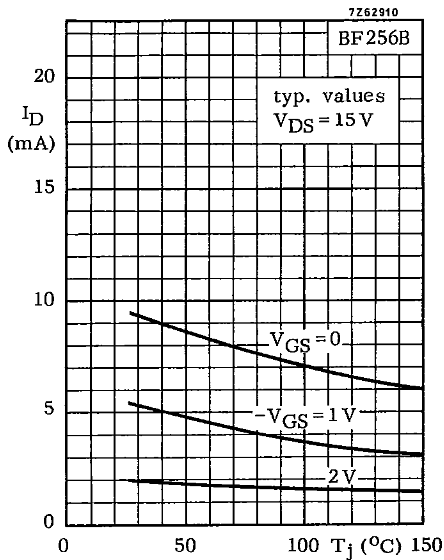

Fig. 6

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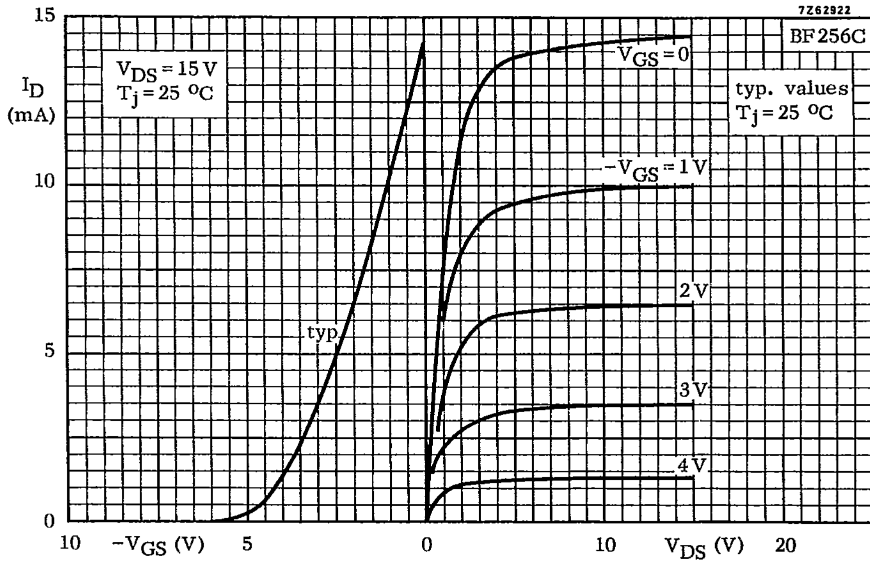

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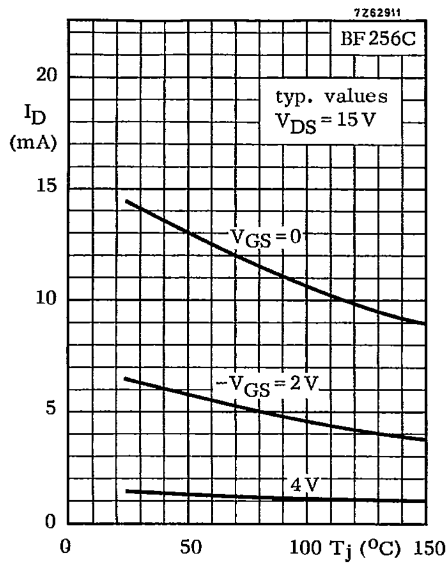

Fig. 8

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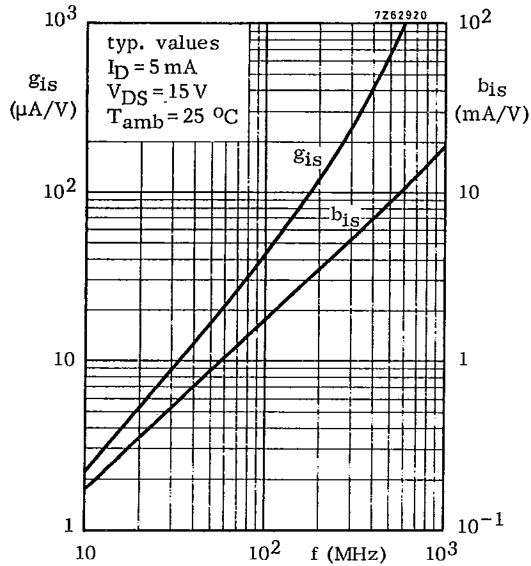

Fig. 9

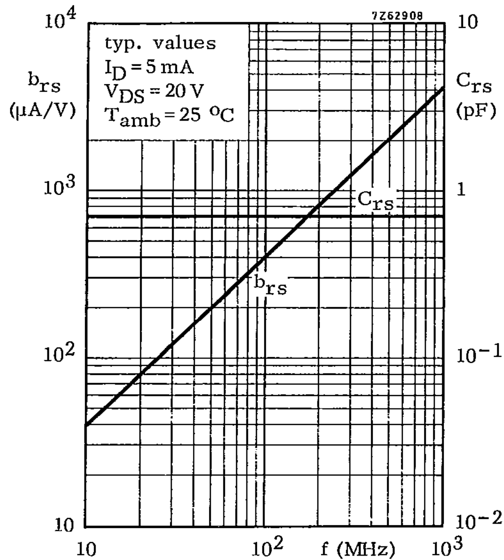

Fig. 10

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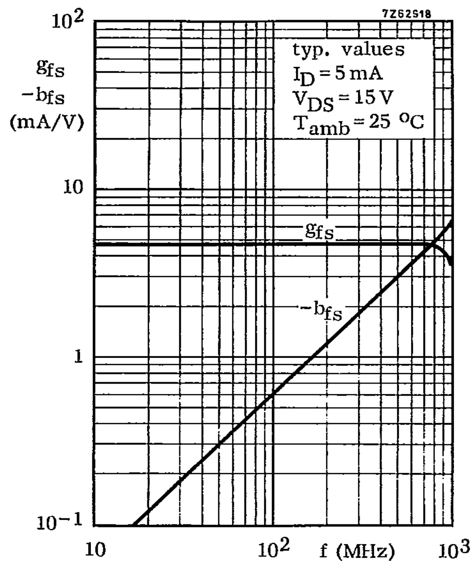

Fig. 11

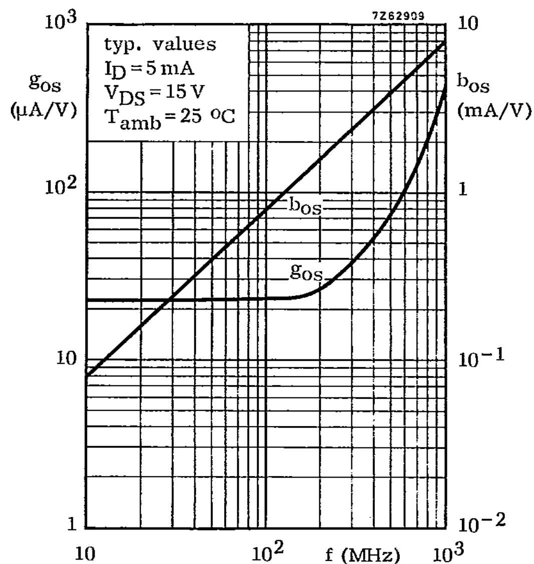

Fig. 12

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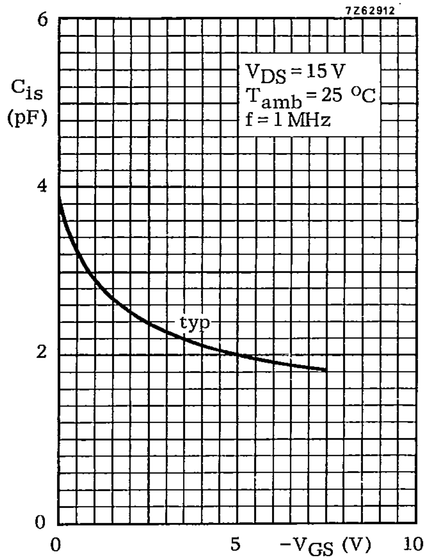

Fig. 13

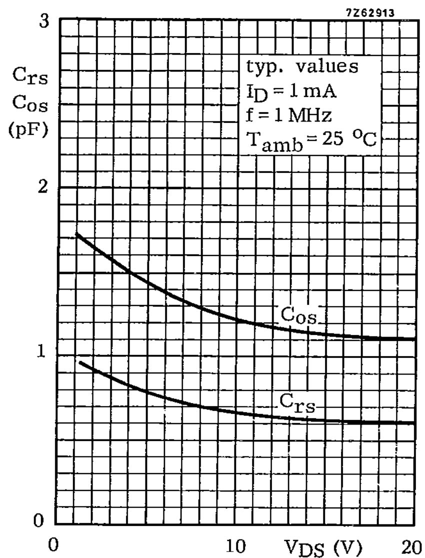

Fig. 14

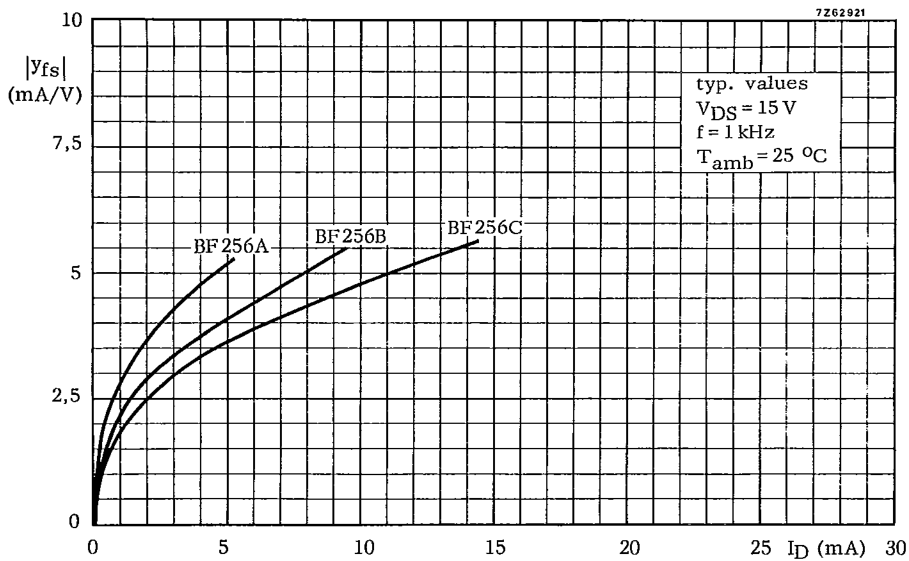

Fig. 15

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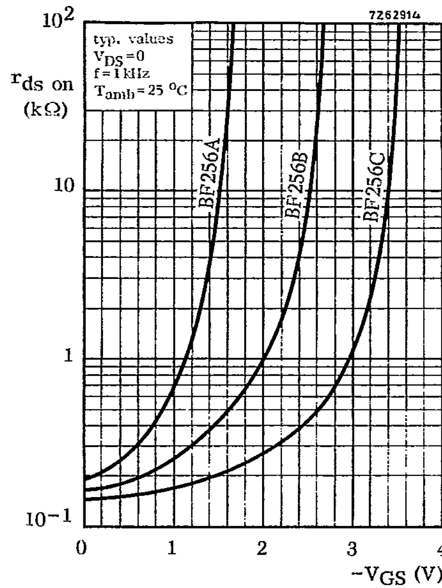

Fig.16

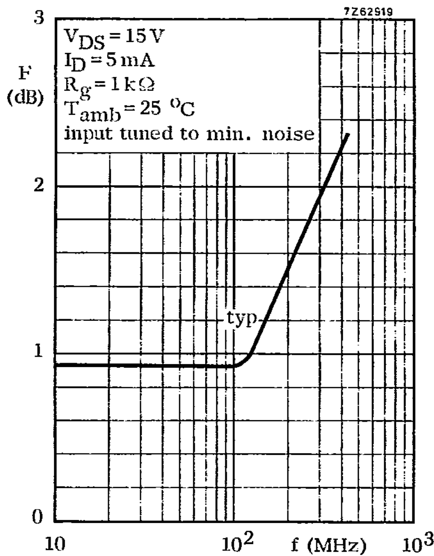

Fig. 17

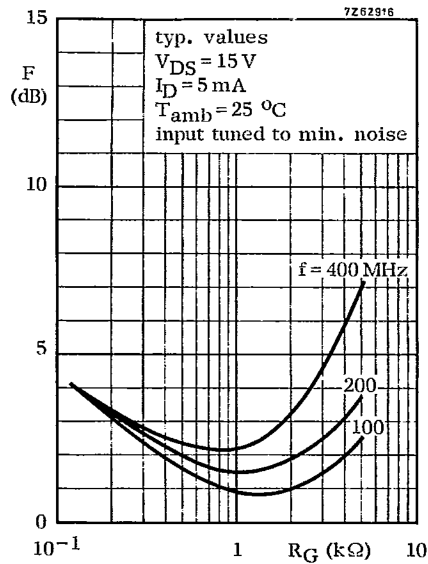

Fig.18

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